

NON-PUBLIC?: N
ACCESSION #: 9101160176
LICENSEE EVENT REPORT (LER)

FACILITY NAME: R. E. Ginna Nuclear Power Plant PAGE: 1 OF 7

DOCKET NUMBER: 05000244

TITLE: Inadvertent Intermediate Range Trip During Transfer of 480 Volt
Bus 14 to "A" Emergency Generator Causes Reactor Trip
EVENT DATE: 12/12/90 LER #: 90-016-00 REPORT DATE: 01/11/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 003

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Wesley H. Backus Technical TELEPHONE: (315) 524-4446
Assistant to the Operations Manager
COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On December 12, 1990 at 2322 EST with the reactor at approximately 3% full power, a reactor trip occurred from one (1) out of two (2) Intermediate Range Nuclear Instrument High Flux Trip.

The two reactor trip breakers opened as required and all shutdown and control rods inserted as designed.

The reactor trip was due to one (1) out of two (2) Intermediate Range Nuclear Instrument System High Flux Trip Bistable becoming de-energized during the transfer of Bus 14 power from its normal supply to the "A" Emergency Diesel Generator.

Immediately, corrective action was to stabilize the plant in hot shutdown per Emergency Operating Procedures.

The underlying cause of the event was determined to be a design deficiency in the available means of transferring electrical loads to a Diesel Generator, during power operations.

Actions will be taken to identify the optimal methodology for transferring electrical power supplies.

END OF ABSTRACT

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I. PRE-EVENT PLANT CONDITIONS

The plant was in the process of starting up subsequent to the plant trip of 12/11/90 (discussed in LER 90-013). The reactor was at approximately 3% full power awaiting clearance that secondary chemistry parameters were within specification.

The Control Room operators were in the process of transferring Bus 14 from its normal power supply to the "A" Emergency Diesel Generator as part of the repair procedure for the Bus 14 Undervoltage Monitoring system. The Bus 14 Undervoltage Monitoring System Event is discussed in LER 90-015.

II. DESCRIPTION OF EVENT

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- o December 12, 1990, 2322 EST: Event Date and Time
- o December 12, 1990, 2322 EST: Discovery Date and Time
- o December 12, 1990, 2322 EST: Control Room operators verify both Reactor Trip Breakers open and all Control and Shutdown Rods inserted.
- o December 12, 1990, 2327 EST: Control Room operators close both Main Steam Isolation Valves (MSIVs) to terminate plant cooldown.
- o December 12, 1990, 2332 EST: Plant stabilized at hot shutdown.

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B. EVENT:

On December 12, 1990, at approximately 2322 EST, with the reactor at approximately 3% full power, the operators were transferring power supplies for Bus 14, per the direction of procedure M-48.14 (Isolation of Bus 14 Undervoltage System for Maintenance, Troubleshooting, Rework and Test). During this transfer, a momentary loss of power occurs to Bus 14. Bus 14 feeds MCC-1C, which feeds Instrument Bus 1B. Therefore, Instrument Bus 1B had a momentary loss of power, which de-energized the bistable for Intermediate Range (IR) Nuclear Instrument System (NIS) High Flux Trip, for IR NIS Channel N-36. This reactor trip was due to one (1) out of two (2) IR NIS High Flux Trip bistables becoming de-energized.

The Control Room operators immediately performed the applicable actions of Emergency Operating Procedures E-O (Reactor Trip Or Safety Injection) and ES-0.1 (Reactor Trip Response) and stabilized the plant in hot shutdown. Subsequently, the MSIVs were closed to terminate a plant cooldown.

The Control Room operators notified higher supervision and the Nuclear Regulatory commission (NRC) of the reactor trip.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

None.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None.

E. METHOD OF DISCOVERY:

The event was immediately apparent due to alarms and indications in the Control Room.

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F. OPERATOR ACTION:

Subsequent to the reactor trip, the Control Room Operators performed the applicable actions of Emergency Operating Procedures E-O (Reactor Trip or Safety Injection) and ES-0.1 (Reactor Trip Response) and stabilized the plant in hot shutdown. The MSIVs were closed to terminate a plant cooldown.

G. SAFETY SYSTEM RESPONSES:

None.

III. CAUSE OF EVENT

A. IMMEDIATE CAUSE:

The reactor trip occurred due to a 1 out of 2 High Flux Trip signal from IR NIS Channel N-36. This trip signal is manually defeated when reactor power is above permissive P-10 (8% reactor power). At existing plant conditions (3% power) this trip signal could not be defeated.

B. INTERMEDIATE CAUSE:

The High Flux Trip signal from IR NIS Channel N-36 was due to its trip bistable de-energizing during the momentary loss of power to Instrument Bus 1B.

The momentary loss of power to Instrument Bus 1B was due to the momentary loss of power to Bus 14 during the transfer of Bus 14 from its normal supply to the "A" D/G.

C. ROOT CAUSE:

The underlying cause of the momentary loss of power to Bus 14 during the transfer of Bus 14 from its normal supply to the "A" D/G was due to a design deficiency. Technical Specifications actions (based on the design of the Undervoltage Protection system), require the bus loads be transferred to the Emergency Diesel Generator, after a failure in the Undervoltage Protection system. The switching operations to

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accomplish this load transfer presents a probability of a reactor trip (if below Permissive P-10) or a turbine runback (if above Permissive P-10 with the IR High Flux trip signal blocked). Any switching sequence performed in the Control Room to meet the Technical Specifications requirements will present some probability of an Engineered Safety Feature (ESF) actuation.

IV. ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a)(2)(iv), which requires reporting of "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)," in that the IR NIS High Flux Reactor Trip was an automatic actuation of the RPS.

An assessment was performed considering both the safety consequences and implications of this event with the following results and conclusions:

- o The two reactor trip breakers opened as required.
- o All control and shutdown rods inserted as designed.
- o The plant was stabilized in hot shutdown.

This transient was compared to the transients described in the Ginna Updated Final Safety Analysis Report (UFSAR). None of the assumptions of the UFSAR were violated during this event. The response of the plant to this transient is bounded by the results of the UFSAR analysis.

Based on the above, it can be concluded that the public's health and safety was assured at all times.

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V. CORRECTIVE ACTION

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

As the direct cause of the event involved a momentary loss of power to the 1B Instrument Bus, no immediate corrective action was necessary. Subsequently, at 0644 EST on December 13, 1990, the normal supply to Bus 14 was restored.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

As the underlying cause of the event was a design deficiency, corrective action planned or taken to prevent recurrence is as

follows:

- o The methods available for transfer of loads to an Emergency Diesel Generator will be identified. We will evaluate the optimal methodology for switching power supplies, one that will minimize the risk of an ESF actuation.
- o Based on the results of this evaluation, we will determine the need for hardware improvements or changes to the Technical Specifications.
- o Maintenance procedures were reviewed, and those affecting transfer of power that affects continuity of power to Instrument Buses were made unavailable for use.
- o Those procedures that were made unavailable for use will be reviewed, and revised where needed, prior to being released for use.

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VII. ADDITIONAL INFORMATION

A. FAILED COMPONENTS:

None

B. PREVIOUS LERs ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results: No documentation of similar LER events with the same root cause at Ginna Station could be identified.

C. SPECIAL COMMENTS:

See LER 90-015 for a discussion of the Undervoltage System failure that resulted in the need for the repair activity, and LER 90-017 for a discussion of other events caused by this repair activity.

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January 11, 1991

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: LER 90-016, Inadvertent Intermediate Range Trip
During Transfer of 480 Volt Bus 14 to the "A" Emergency Diesel
Generator Causes a Reactor Trip
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item
(a) (2) (iv), which requires a report of, "any event or condition that
resulted in manual or automatic actuation of any Engineered Safety
Feature (ESF), including the Reactor Protection System (RPS)", the
attached Licensee Event Report LER 90-016 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,

Robert C. Mecredy

xc: U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
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Ginna USNRC Senior Resident Inspector

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